

3. (Once amended) The method of claim 9 wherein calculating the square of the ratio comprises:

calculating the square of a first ratio between the number of texels for one pixel along a first axis and the square of a second ratio between the number of texels for one pixel along a second axis orthogonal to the first axis; and

selecting the greater of the square of the first ratio and the square of the second ratio for calculating the LOD.

4. (Once amended) The method of claim 9 wherein the square of the ratio comprises an unsigned fixed-point binary value having a number of integer bits and fractional bits, and approximating a base-two logarithm of the square of the ratio comprises:

shifting the square of the ratio left by the number of leading zeros (LZs) and ignoring the most significant bit (MSB) of the resulting number to produce a first number;

calculating a six-bit signed integer value from the equation:

6-bit signed integer = [(number of integer bits - 1) - LZs];

concatenating the six-bit signed integer value to the first number; and

defining the five MSBs of the resulting number as the signed integer portion of the LOD.

5. (Once amended) The method of claim 9 wherein the square of the ratio comprises an unsigned fixed-point binary value having an integer portion and a fractional portion.

9. (Once amended) A method for computing a level-of detail (LOD) for application of texels of a texture map to pixels of a graphics image, the method comprising:

calculating the square of the ratio between the number of texels for one pixel;

approximating a base-two logarithm of the square of the ratio; and

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dividing the result by two to provide the LOD, the LOD being a signed fixed point binary value having an integer portion five bits in length and further having a fractional portion.

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11. (Once amended) The method of claim 15 wherein the square of the ratio comprises an unsigned fixed-point binary value having an integer portion and a fractional portion.

15. (Once amended) A method for computing a level-of detail (LOD) for application of texels of a texture map to pixels of a graphics image, the method comprising:

calculating the square of a first ratio between the number of texels for one pixel along a first axis and the square of a second ratio between the number of texels for one pixel along a second axis orthogonal to the first axis;

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selecting the greater of the square of the first ratio and the square of the second ratio for calculating the LOD;

shifting the selected square of the ratio left by the number of leading zeros (LZs) and ignoring the most significant bit (MSB) of the resulting number to produce a first number;

calculating a six-bit signed integer value from the equation:

$$6\text{-bit signed integer} = \lceil (\text{number of integer bits} - 1) - \text{LZs} \rceil,$$

where number of integer bits is the number of integer bits representing the selected square of the ratio;

concatenating the six-bit signed integer value to the first number;

defining the five MSBs of the resulting number as a signed integer portion; and

shifting the resulting binary number right by one-bit to provide the LOD, the LOD being a signed fixed point binary value having an integer portion five bits in length and further having a fractional portion.

A5 17. (Once amended) The apparatus of claim 24 having a shifting circuit coupled to receive the result of the approximation and adapted to divide the approximation by two by shifting the approximation right one-bit.

A5 18. (Once amended) The apparatus of claim 24 wherein calculating the square of the ratio comprises:

calculating the square of a first ratio between the number of texels for one pixel along a first axis and the square of a second ratio between the number of texels for one pixel along a second axis orthogonal to the first axis; and

selecting the greater of the square of the first ratio and the square of the second ratio for calculating the LOD.

19. (Once amended) The apparatus of claim 24 wherein the square of the ratio comprises an unsigned fixed-point binary value having a number of integer bits and fractional bits, and approximating a base-two logarithm of the square of the ratio comprises:

shifting the square of the ratio left by the number of leading zeros (LZs) and ignoring the most significant bit (MSB) of the resulting number to produce a first number;

calculating a six-bit signed integer value from the equation:

6-bit signed integer = [(number of integer bits - 1) - LZs];

concatenating the six-bit signed integer value to the first number; and

defining the five MSBs of the resulting number as the signed integer portion of the LOD.

20. (Once amended) The apparatus of claim 24 wherein the square of the ratio comprises an unsigned fixed-point binary value having an integer portion and a fractional portion.

A6 24. (Once amended) An apparatus adapted to receive signals representing texel coordinates for texels of a texture map and pixel coordinates for pixels of a graphics image

to calculate a level-of-detail (LOD), the apparatus calculating the square of the ratio between the number of texels applied to one pixel from the texel and pixel coordinates, approximating a base-two logarithm of the square of the ratio, and dividing the result of the approximation by two to compute the LOD, the LOD being a signed fixed point binary value having an integer portion represented by five bits and further having a fractional portion.